Prepared Testimony
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Chairman Bennett and distinguished members of the Special Committee.
My name is Michehl Gent, and I am the President of the North American Electric Reliability Council (NERC). NERC is a not-for-profit company formed as a result of the Northeast blackout in 1965 to promote the reliability of the bulk electric systems that serve North America. We work with all segments of the electric industry as well as customers to "keep the lights on" by developing and encouraging compliance with the rules for the reliability of these systems. NERC comprises ten Regional Reliability Councils that account for virtually all the electricity supplied in the United States, Canada, and a portion of Baja California Norte, Mexico. For more than 30 years, NERC has played a leadership role in the United States' achieving the most dependable electric system in the world.

In May 1998, then Secretary of Energy Pena requested that NERC coordinate efforts across the nation's electricity sector to assure that critical systems within the nation's electric infrastructure have been tested, and provide an assurance that such systems will be ready to operate into the Year 2000 (Y2k).

Y2k Readiness Statement

After considerable effort and with significant cooperation from our industry partners, we are pleased to be able to deliver that assurance to you and to the American public. Based on data received through June 1999, NERC believes that the electric power industry will operate reliably into the Year 2000 with the resources that are Y2k Ready today.

The North American electric industry, which encompasses more than 3,000 organizations, has undertaken a massive effort to identify, assess, test, remediate, and retest components potentially susceptible to Y2k problems. Working with the Edison Electric Institute, the American Public Power Association, the National Rural Electric Cooperative Association, the Nuclear Energy Institute, and the Canadian Electricity Association, NERC has established milestones for Y2k readiness, tracked industry progress toward Y2k readiness, and facilitated contingency planning activities. With more than 99% of mission-critical components having been remediated and tested, our findings indicate that the transition through critical Y2k dates is expected to have minimal impact on electric system operations in North America.

NERC's belief that the electric power industry will operate reliably into the Year 2000 with the resources that are Y2k Ready today is based on the following findings. These findings are documented in a formal report delivered to the Department of Energy yesterday, a copy of which accompanies this statement.

Key Result 1: The Bulk Electric Systems of North America are Ready to Operate into the Year 2000. — The bulk electric systems reporting monthly to NERC indicate more than 99% of all mission-critical facilities, systems, and components are now ready to operate into the Year 2000.

Key Result 2: Individual Organizations are Recognized by NERC to be Y2k Ready or Y2k Ready with Limited Exceptions. — NERC believes that the 251 organizations listed in our report are Y2k Ready or Y2k Ready With Limited Exceptions in accordance with criteria established by NERC. We believe these organizations should be congratulated for meeting the industry target of June 30, 1999 and for providing information to substantiate this status. Of the 251 organizations, 188 are fully ready with mission-critical electrical systems and 63 have identified to NERC one to a few specific exception items. These exception items represent a fraction of a percent of total facilities being addressed within electric industry Y2k programs. NERC believes that the work schedule provided to complete these exception items in the next few months represents a prudent use of resources and does not increase risks associated with reliable electric service into the Year 2000.

Key Result 3: Progress in Local Distribution Systems Improved in the Second Quarter. — The readiness of investor-owned, public power, and rural cooperative electricity distribution systems markedly improved in the past quarter. This improvement is believed to be the result of a concerted effort within local distribution systems to increase awareness and compliance with the industry readiness target of June 30, 1999. The table below provides a brief summary indicating that distribution systems serving 96.3% of customers have reported their mission-critical electrical systems to be Y2k Ready. Distribution systems serving another 3.2% have reported that they will be Y2k Ready before the end of the year, most of them in the third quarter. Surveys were not received from the remaining 0.5% in the most recent quarter.

	Investor Owned	**Public Power**	**Cooperative**	**Total**	**% Total**
Y2k Ready	545,960	92,012	69,467	707,439 MW	96.3%
Not Y2k Ready	4,791	8,224	10,501	23,516 MW	3.2%
Unknown	0	2,570	808	3,378 MW	0.5%
Total	550,751	102,806	80,776	734,333 MW	100%

Key Result 4: The Electric Industry has Applied a Thorough and Systematic Approach to Addressing the Y2k Issue. — The electric industry has applied a thorough and systematic process to identify, test, and fix or replace mission-critical components used to produce and deliver electricity. The process methods and results are well documented.

Key Result 5: Self-Reported Data is Being Verified. — The data used by NERC and its Y2k process partners to assess the readiness of electric systems is principally self-reported. NERC gained a greater sense of confidence in the accuracy of reported data by working closely with Y2k program managers. Of the organizations reporting to NERC, 84% of the Y2k programs have been audited. 36.7% of the programs were reviewed by both internal and external auditors; 23.4% by external auditors, and 23.9% by an internal corporate auditor.

Key Result 6: Minimal Operational Impact. — Mission-critical component testing indicates that the transition through critical Y2k dates is expected to have minimal impact on electric system operations in North America. It is estimated that fewer than 3% of items that were tested during the Assessment phase had any difficulty at all with Y2k date manipulations. The types of devices that did experience trouble with Y2k date manipulations exhibited mostly nuisance errors, such as incorrect date displays and date-time stamps used for data logging and reporting. In most cases, Y2k did not affect primary device functions related to keeping generators and power delivery facilities in service and electricity supplied to customers. Despite this mostly nuisance nature, many items that were found to have date issues were systematically replaced or fixed, further reducing operating risks.

Key Result 7: Contingency Plans are Y2k Ready. — Although the impacts of Y2k are expected to have minimal effects on the ability to reliably operate electric power systems, the industry has taken proactive steps, under its "defense-in-depth" strategy, to prepare for possible operating contingencies. NERC and its ten Regional Reliability Councils recently completed a review of Y2k contingency plans for the more than 200 bulk electric systems of North America (control areas, transmission providers, and security coordinators). All of these organizations provided plans that document well-designed strategies to prepare for operations during the transition and to respond safely and effectively to a problem.

Key Result 8: Y2k Efforts are Providing Additional Benefits. — The electric industry's Y2k efforts have provided unprecedented opportunities for process improvement. Just to name a few examples, the electric industry has been able to identify and test its essential digital systems, to increase coordination of mission-critical services across intra- and intercompany boundaries, to accelerate computer system replacement projects, and to update contingency and emergency procedures. The benefits of Y2k readiness extend to everyday improvements in reliability of electricity services, not just being ready for the rollover to the Year 2000.

Let me turn now to steps the industry is taking to further assure operational reliability into the new millennium. NERC's defense-in-depth strategy assumes that although we have taken all reasonable and necessary preventive steps, there can never be a 100% guarantee that everything will work perfectly. In October 1998, NERC requested that all bulk electric system

operating entities in North America prepare Y2k contingency by June 30, 1999. NERC and the ten Regional Reliability Councils reviewed the draft plans back in December 1998 and the final contingency plans in June 1999. The following results were achieved:

- All bulk electric system entities have developed Y2k contingency plans in accordance with NERC guidelines. A list of these entities whose contingency plans have been reviewed by NERC is provided in the attached Y2k report to DOE.
- The contingency plans have been determined to meet the objectives of the NERC guidelines and to satisfactorily address credible risks associated with Y2k.
- Contingency plans have been coordinated and integrated on a Regional and interregional basis.
- Contingency plans are supported by operating and engineering analysis of Y2k risks and mitigation strategies.

The electric power industry is prepared for and responds to disruptions and unusual events on the grid on a year-round basis. Much of our existing operating standards and procedures apply as well to Y2k transition periods. Let me share a few steps that will be taken as extra precautions related to Y2k:

- Staffing Critical Facilities — During the Y2k transition periods, operating entities will place additional operating and technical personnel in essential substations, power plants, operating centers, and other key facilities. In most cases, steps have been taken to curtail vacations and adjust staffing schedules during the critical periods. These additional personnel will allow more secure operations and a timely response to any conditions that may arise during the Y2k transition period. Additional computer support, communications, and management personnel also will be available at key locations to assure continuity of essential services and information. Personnel are being trained for their roles and are being provided opportunities to practice those roles during the NERC Y2k drills, as well as, in some cases, other drills within the organization.
- Back-up Communications — Voice and data communications are perceived to be the greatest vulnerability of reliable electric system operations. To address this dependency on communications, electric power organizations are using existing and newly installed redundant communications. Mobile radios, satellite phones, internally owned PBXs, cell phones, and other systems afford electric utilities two, three, and in some cases four independent ways to communicate with operating personnel. Practicing the use of back-up voice communications has been the focus of the NERC Y2k drills. With a possible loss of data communications, a bare minimum of operating information may be transferred by voice to the control center to allow continued safe and reliable operation.

- Commitment of Additional Generation Resources — All operating entities are planning for the provision of additional generation resources during the Y2k transition periods. In most cases, the electrical output of baseloaded generating units will be reduced from their maximum output to some lesser amount. This reduction in generation will permit additional generating units, which normally would not run during the long New Year holiday weekend, to operate and generate electricity. Most units will be operating at a reduced output, which is above the minimum but below the maximum allowable for the unit. This allows the system operator maximum flexibility to increase or decrease unit outputs in response to higher or lower than expected customer demands.
- Nuclear Plants Operate Normally — Nuclear plants are expected to operate at either normal output or in some cases at outputs reduced slightly from maximum, such as in the 80–95% output range. Reducing the output of nuclear units will provide system operators greater flexibility by allowing the use of other types of units. Nuclear plant operators and system operators will finalize operating strategies for the nuclear facilities based on assuring the utmost of plant safety and meeting the electrical needs of the power system.
- Increase in Operating Reserve Requirements — Operating reserves consist of extra generating capacity that is either operating online or available to start and provide electricity within ten minutes (the timing requirement may vary on some systems). Normally, operating reserves would cover the largest single contingency on the system. During the Y2k transition periods, minimum operating reserve requirements will be increased to at least two to three times normal operating reserve requirements. With the number of additional units committed to operate, actual operating reserves are expected to be much higher than the minimum requirement.
- Reduce Transfer Limits on Bulk Transmission System — Most systems are considering some reduction in the amount of energy transfers they will allow across key transmission facilities. This strategy ensures transmission lines, transformers, high voltage DC systems, and other transmission facilities are not loaded to their maximum transfer capability. For example, a group of transmission lines that make up a power transfer interface may be limited to 80% or 90% of its normal maximum rating to allow greater flexibility and security. Reducing transfer limits will not impact the ability to serve customers, because an abundance of generation will be operating.
- Fuel Supply Flexibility — Fuel supply is not expected to be a major risk for electric operations. Coal and oil supplies will be assessed to assure adequate supplies are on hand at the generators. Many organizations are temporarily increasing the supplies above normal levels. Natural gas supplies are for the most part in the gas pipeline. Availability of natural gas is being coordinated with those suppliers. Hydro reservoirs will be adjusted to ensure maximum reserve capacity is available. Pumped-storage facilities will be in a position to either pump water to their reservoirs or generate electricity depending on system demand. Although fuel supply is not seen as a major risk, the strategy is to maintain maximum flexibility to use alternative types of fuels should it be necessary.

- Curtail Short Term Maintenance — Most organizations plan to make all generation, transmission, and distribution facilities available for operation during the Y2k transition period. This approach requires the curtailment of maintenance activities that might normally result in a portion of facilities out of service. Some facilities that are in a major overhaul or under construction may be excluded.

Let me now turn to the important function providing information on the operational status of electrical systems during the Y2k transition period. More than two years ago, NERC established 21 Regional security coordinators to monitor power system conditions and coordinate steps to assure reliability. These security coordinators have access to information within their Regions and to a dedicated Hotline for interregional coordination. The security coordinators are installing satellite voice systems as an alternate communications channel during Y2k transition periods.

NERC is working closely with DOE and the President's Council on Year 2000 to develop interindustry information interfaces that will allow the gathering and dissemination of timely information from various critical infrastructure industries during Y2k transition periods. This process also will include same-day information from Asia, Australia, Europe, and other advanced time zones. The current plan is to staff the Y2k information centers continuously from December 29, 1999 until January 4, 2000.

NERC also is facilitating a second industrywide Y2k drill on September 8–9, 1999. This drill will provide electric systems an opportunity to rehearse key portions of their administrative, operating, communications, and contingency response plans for the transition into the Year 2000. This second drill is an expanded scope from our first drill, which was successfully completed on April 9, 1999.

Finally, NERC and the electric industry have worked closely with representatives from other critical infrastructure industries (telecommunications, natural gas, oil, and transportation) that share Y2k dependencies. An interindustry task force was formed to review dependency and contingency planning issues.

Although we have made significant progress, our work on Y2k is not yet done. During the remainder of the year, NERC will coordinate the following activities in the industry:

1. NERC and the Regional Reliability Councils, in a cooperative partnership with several trade associations, will continue to facilitate electric industry preparations for Y2k.

2. The NERC Y2k readiness assessment process will continue to track exceptions and remaining entities to achieve Y2k Ready status, and provide periodic updates to DOE and the public.

3. NERC and the ten Regional Reliability Councils will continue to monitor preparations for and deployment of operational and contingency plans.

4. The industry will conduct a second Y2k drill on September 8–9, 1999 to rehearse Y2k administrative procedures, communications, and contingency response plans.

5. NERC will continue to coordinate efforts with the telecommunications industry and other critical suppliers to mitigate possible risks associated with dependencies.

6. NERC and the electric industry will support and participate in the development of the President's Y2k Information Coordination Center (ICC). The ICC will allow the monitoring of timely status information from critical infrastructure sectors during Y2k transition dates.

In conclusion, I would like to note that when we began our efforts, many were pointing to the electric industry as a likely problem area in the Year 2000 transition. Today, nearly all informed observers consider our response to the Y2k challenge as a textbook example of effective industry action to address a pressing public concern. Even with a favorable prognosis, we recognize that we have a continuing responsibility to the people of North America to sustain our efforts up to and through critical dates in the Year 2000 transition. The industry is committed to maintaining a reliable supply of electric power into the Year 2000 and beyond.